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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.   | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------|------------------|
| 10/065,963  | 12/04/2002  | Michael James Lercel | BUR920020024          | 2539             |
| 24241   | 7590        | 06/03/2005           | EXAMINER              |                  |
| IBM MICROELECTRONICS<br>INTELLECTUAL PROPERTY LAW<br>1000 RIVER STREET<br>972 E<br>ESSEX JUNCTION, VT 05452 |             |                      | MOHAMEDULLA, SALEHA R |                  |
|   |             | ART UNIT             |                       | PAPER NUMBER     |
|   |             | 1756                 |                       |                  |
| DATE MAILED: 06/03/2005   |             |                      |                       |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/065,963             | LERCEL ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Saleha R. Mohamedulla  | 1756                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11 March 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-19 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-10 and 20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

Claims 1-20 are pending. Claims 11-19 are withdrawn from examination.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-10 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 recites the limitation "the region" in line 4. There is insufficient antecedent basis for this limitation in the claim. Claims 2-10 are rejected as being dependent on claim 1.

4. Claim 20 recites "the method of claim 19", however, claim 19 is a device claim.

Therefore, there is insufficient antecedent basis for the claim 20 limitation. Correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-10 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by US# 5,942,760 to Thompson et al.

Thompson teaches A mask (300) for scattering angular limited projection electron beam lithography, including a substrate (102) having an opening (103) extending into the substrate, a membrane layer (204) extending over the substrate, the membrane layer including a window portion (209) that overlies an opening in the substrate and being formed of a material having a first electron scattering power, a patterned scattering layer overlying the membrane layer, at least along the window portion of the membrane layer, the patterned scattering layer being formed of a material having a second electron scattering power that is greater than the first electron scattering power, and an encapsulating layer (210) overlying the patterned scattering layer, the encapsulating layer having a third electron scattering power that is less than the second electron scattering power (Abstract). The encapsulating layer is the blocking layer. Because the encapsulating layer covers the dummy shapes at the ends of the mask, it prevents the shapes from printing.

7. Claims 1-10 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by US# 6,221,537 to Thompson et al.

Thompson teaches a method of forming a semiconductor device by obtaining a substrate, with a first surface and a second surface, where the substrate has a first material and a second material separated by an etch stop. A membrane film is deposited on the first surface of the substrate and the substrate is patterned to form an opening through the second surface and through the second material to the etch stop layer. The etch stop layer and the first material in

the opening are then patterned to form the semiconductor device. This method may be used to form a lithographic mask and further embodiments of the present invention (Abstract). The etch stop layer can be the blocking layer. In Figure 7, Thompson teaches forming a second membrane layer on the mask and patterning the membrane. Because the etch stop layer covers the dummy shapes at the ends of the mask, it prevents the shapes from printing.

***Response to Arguments***

8. Applicant argues that the references do not teach preventing the dummy fill shapes from printing by use of the blocking layer. However, because the encapsulating layer in Thompson '760 or the etch stop layer in Thompson '537 cover the dummy shapes, they prevent the shapes from printing. Therefore, Applicant's arguments are not persuasive.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Saleha Mohamedulla whose telephone number is (571) 272-1387. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Saleha R. Mohamedulla

Patent Examiner

Technology Center 1700

May 31, 2005